

[54] TIME CORRECTED, CONTINUOUSLY
UPDATED CLOCK

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368/51, 52, 200-202; 375/107, 118

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[57] ABSTRACT

Time referenced RF signals are periodically received and processed for updating a microprocessor-controlled clock. The clock automatically scans several

frequencies at which the coded RF timing signals are transmitted, selecting the strongest received signal for synchronization therewith and causes a capture LED to be illuminated upon detection of a sufficiently strong signal at the beginning of a minute tone at one of the received frequencies. The microprocessor periodically determines the timing difference between an internal timer and the received RF timing signals. A time difference correction is provided to a digital-to-analog converter which provides an appropriate voltage to a varactor diode in a crystal oscillator circuit for adjusting the microprocessor's operating frequency until it can no longer resolve a difference between the received RF timing signals and its internal timer. This permits highly accurate clock operation in between the periodic reference time updates and eliminates cumulative time error. Manual switches are provided for correcting for received signal propagation delay and for selecting the appropriate time zone as well as for allowing for daylight saving time and UTC₁ correction. In addition, the microprocessor-controlled crystal oscillator ensures accurate time-keeping when the transmitted RF timing signals are too weak for clear reception.

15 Claims, 4 Drawing Figures

